Q. Do you know the quantity that beet roots remove?—I could not tell you the exact quantity.

Q. Would it not be about six hundred pounds per acre?—It ought to amount to about that figure.

Q. How do you explain the fact that land that used to grow wheat produces now only small crops of wheat?—I think one of the principal reasons is because the wheat takes from the ground the phosphoric acid and potash. These are the two principal elements that constitute wheat. They are the predominant elements in wheat. If you do not restore them to the land the crop must fail. In Quebec wheat has been grown for years and years in the same field and on the same land, and the elements thus removed have not been restored to the ground. Under these circumstances, the plant does not find the elements in sufficient quantities, and refuses to grow. In a rotation we have plants that are sympathetic or antipathetic with themselves or others. Wheat is one of those plants that become antipathetic with itself; that is to say, that after a certain number of years it cannot be grown in the same field, while other plants may be successfuly grown for years and years. Some plants will grow well after other plants, others will not.

By Mr. Fisher:

Q. Those that take the same elements from the soil ought not to follow one another?—No.

By the Chairman:

Q. Would a chemical laboratory be useful?—I think a chemical laboratory would be useful, and indeed of great advantage to farmers all over the country. We have here already geological surveys of the country which describe the aspect or the formation of the land in the various regions. I think we should have some attention paid to agriculture, with a view to the making out of the places where certain plants will grow with greater facility than others. The Dominion might be divided into regions, and a chemical analysis might be made of each. Then a general statement of the composition of the different parts might be made. In addition to that, if we had a chemical laboratory here, specimens of the soils could be sent to be analyzed here. Of course, that is a work which a farmer can do. While he may tell if there is any lime in his property, while he may make two or three simple analyses, he cannot make a quantitative analysis or say what proportion of any given element there is in his soil. If a chemical laboratory were established here, farmers could send specimens of their soil here for analysis, and then get a full knowledge of the composition of their own soil.

By Mr. Fisher:

Q. The difficulty in the soils is, that they vary very much; it is only in certain kinds of soil that you can get a large area of similar components?—That depends upon the geological formation of the land. In some places you meet with a large area having the same qualities throughout; in others, you may find different elements in one field. It depends upon whether the strata is horizontal or oblique.

By the Chairman:

Q. Is the preservation and employment of our animal manures very defective among our farmers?—Yes; very defective. Most of the manures are left outside in the open air. By reason of this, the sun dries up the gaseous matters from it, and the rain washes the soluble parts out of it. Thus the assimilable principles of the manure are completely lost. The way the manure is spread on the ground in some parts of the country is a great cause of loss, too.

Q. What have you to say about our phosphate mines?—I do not really know all the riches we have in the way of phosphates; but I think that a great deal of our phosphates could be utilized if we had the necessary apparatus to change it into superphosphates. I understand that a great deal of our phosphates are carried out of the country, changed into superphosphates and brought back again. I think if the Government would give a premium to encourage the establishment of factories to bring our phosphates to superphosphates, it would be a good thing.